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Inquiry Training Model: A Teaching Strategy to enhance Creative and Critical Thinking

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ABSTRACT

The inquiry training model was developed by Richard Suchmau to teach students a process for investigating and explaining unusual phenomena. The model was developed on the basis of analysis of different methods utilized by the creative researchers particularly physical scientists. He identified several elements of their inquiry process. It is assumed that individuals faced with such a situation are naturally motivated to solve the puzzle. This model is used to teach learners to process and analyse the information given by themselves. Richard Suchman indicates that people inquire naturally by what puzzles them and they can become conscious and learn to analyse new strategies that can be helpful to them. This process aids students to develop critical thinking skills and provide explanations to questions or problems set in familiar as well as unfamiliar situations. The general inquiry process has a general goal of helping students develop the necessary intellectual discipline and skills to raise questions and find answers to any questions coming to them with their curiosity.

Introduction

The inquiry training model originated with a belief in the development of independent learners. Students are usually curious and eager to know and make sense of the world around them. The inquiry training model capitalizes on their natural zeal for energetic explorations, giving them specific directions. so that

they explore new areas more forcefully. The inquiry training model was developed by Richard Suchmau to teach students a process for investigating and explaining unusual phenomena. This model is the outcome of the analysis made of the methods employed by physical scientists. According to this model, inquiry training begins by presenting students with a puzzling event. It is assumed that individuals faced with such a situation are naturally motivated to solve the puzzle. We can use the opportunity provided by natural inquiry to teach the procedures of disciplined searching, using a vast number of strategies involving sequencing, ordering and simple experimentation.

Inquiry Training Model (ITM) was developed by Richard Schumann to teach students a process for investigating and explaining unusual phenomena. Hence, this model is a kind of Information Processing Model. This model takes students through miniature versions of the kinds of procedures that scholars use to organize knowledge and generate principles. Based on a conception of scientific method, it attempts to teach students some of the skills and language of scholarly inquiry.

Suchman's model was developed on the basis of analysis of different methods utilized by the creative researchers particularly physical scientists. He identified several elements of their inquiry process. On the basis of this, he developed inquiry training model. The Inquiry Training Model is founded on the concept that the problem-solving and inquiry techniques used by scientists can be taught to students. By tapping into students' natural curiosity, this model aims to train them in the procedures of inquiry.

Inquiry training originated with the belief in the development of independent learners; its method requires active participation in scientific inquiry. Children are curious and eager to grow, and inquiry training capitalizes on their natural energetic explorations, giving them specific directions so that they explore new areas.

This model is used to teach learners to process and analyse the information given by themselves. Richard Suchman indicates that people inquire naturally by what puzzles them and they can become conscious and learn to analyse new strategies that can be helpful to them. This process aids students to develop critical thinking skills and provide explanations to questions or problems set in familiar as well as unfamiliar situations. The general inquiry process has a general goal of helping students develop the necessary intellectual discipline and skills to raise questions and find answers to any questions coming to them with their curiosity.

The general goal of inquiry training is to help students develop the intellectual discipline and skills necessary to raise questions and search out answers stemming from the curiosity. Thus, Schumann is

interested in helping students inquire independently, but in a disciplined way. He wants students to question why events happen as they do and to acquire and process data logically, and he wants them to develop general intellectual strategies that they can use to find out why things are as they are. Inquiry training begins by presenting students with a puzzling event. Schumann believes that individuals faced with such a situation are naturally motivated to solve the puzzle. Schumann believes, further, it is important to convey to students the attitude that all knowledge is tentative. Students should recognize and be comfortable with the ambiguity that genuine inquiry entails.

The inquiry training model has following goals.

1. To enhance the thinking ability of students.
2. To enable them to form conclusions based on facts.
3. To enable them to have fluency in their thinking and speaking.
4. More specialty to impart training of inquiry skills.

Syntax of Inquiry Training Model

Inquiry training model has five phases. In the first phase is the student is confronted with a puzzling situation. In phase two, students are required to gather the data to verify the nature of objects and conditions and also to verify the occurrence of the problem or situation. In the third phase, they will again gather the data but this time they will gather the data for experimentation. In these two phases, students ask a series of questions to which the teacher replies yes or no, and they conduct a series of experiments on the problem or situation. In the fourth phase, students organize the information they obtained during the data gathering and try to explain the discrepancy. Finally, in phase five, students analyse the process of inquiry or problem-solving strategies they used during the inquiry.

In the following table, the phases and corresponding activities related to the syntax of the inquiry training model has been given.

Phases	Activities
Phase-I: Confrontation with Problem.	• Explanation of inquiry procedures. • Present discrepant event.
Phase-II: Data Gathering and Verification	• Verify the nature of objects and

	conditions. • Verify the occurrence of the problem/ situation.
Phase-III: Data gathering for experimentation.	• Isolate relevant Variables, Hypothesis (and test) casual relationships
Phase-IV: Explanation	• Formulation of Rules/ Explanations
Phase-V: Analysis of Inquiry Process	• Analysis of Inquiry Process

MODEL LESSON PLAN based on Inquiry Training Model

A Model Lesson Plan based on Inquiry Training Model is presented below.

P.T.'s Roll No.: 01

Class: IX

Subject: Economics

Topic: Industrial Development

Model of Teaching: Inquiry Training Model

General Aids: Blackboard, Chalk, Duster, Pointer

Specific Aids: Flash cards related to Topic

Instructional Objectives: At the end of the lesson the students will be able:

1. To state the importance of industrial development.
2. To list the factors needed for industrial development.
3. To explain the process of industrial development.

Previous Knowledge Assumed: PT will assume that students are aware about the meaning industry and its types.

Phase I: Confrontation with Problem

Pupil Teacher's (P.T.'s) Activity: "Students, today I shall present a problem before you and shall also provide you some hints related to the problem. But these hunts will be inappropriate for solving the problem. For seeking more information related to problem you will have to ask some questions. The questions should be formed in such a way that the answer could be obtained in 'Yes' or 'No' form. On the basis of the responses, you will have to formulate some hypotheses which are to be verified. The correct hypothesis will help you construct the concept. The problem is as below."

"Mumbai is a metropolitan city of India. It is also known as the capital city of the country. The standard of living of the its citizens is high as the per capita income is high. It is so because that there are many sources of employment including good number of industries which provide good number of opportunities for employment to its citizens. Students! we can say that Mumbai is an industrially developed city. Now, can you tell me what are the factors required for industrial development of any area?"

Phase II: Data Gathering and Verification

In this phase, pupils will give some examples of the factors required for industrial development of any area and P.T. will accept the example if it is correct and reject if wrong.

Pupil's Activity: Good environment

Pupil Teacher's Activity: No

Pupil's Activity: Sea

Pupil Teacher's Activity: No

Pupil's Activity: Land

Pupil Teacher's Activity: Yes

Pupil's Activity: Labour

Pupil Teacher's Activity: Yes

Pupil's Activity: Money

Pupil Teacher's Activity: Yes (Use the term capital instead of money)

Pupil's Activity: Raw Material

Pupil Teacher's Activity: Yes

Pupil's Activity: Good Infrastructure

Pupil Teacher's Activity: Yes

Pupil's Activity: Rain

Pupil Teacher's Activity: No

Pupil's Activity: Availability of all modes of Transportation

Pupil Teacher's Activity: Yes

Pupil's Activity: Communication Techniques

Pupil Teacher's Activity: Yes

Pupil's Activity: Modern Techniques of production

Pupil Teacher's Activity: Yes

Phase III: Data Gathering for Experimentation

Here, pupils will formulate some hypotheses in question form and P.T. will either accept or reject them depending upon their correctness.

Pupil's Activity: Do the govt. policies also affect the industrial growth of a region?

Pupil Teacher's Activity: Yes

Pupil's Activity: Is the active role of entrepreneurs also required industrial growth of a region?

Pupil Teacher's Activity: Yes

Pupil's Activity: Can entrepreneurs are free to establish and operate the industries in their own way?

Pupil Teacher's Activity: No

Pupil's Activity: Can more than one industry be set up at one place?

Pupil Teacher's Activity: Yes

Pupil's Activity: Will the growth of industries also ensure more employment is the area?

Pupil Teacher's Activity: Yes

Pupil's Activity: Will the unavailability of skilled labour affect adversely the industrial growth of the area?

Pupil Teacher's Activity: Yes

Pupil's Activity: Are the terms industrial development and economic development inter-changeable?

Pupil Teacher's Activity: No, they are inter-related.

Phase IV: Explanation

Pupil Teacher's Activity: P.T. will ask students to now explain in detail about the present problem i.e., Industrial Development on the basis of the data gathered and experimented in the previous phases.

Pupil's Activity: For the industrial development of any area the major factors include infrastructure, modes of transportation and communication, availability of raw material and capital. Besides, the availability of skilled labour also affects the industrial development. With the advancement in the field of science and technology, the modern techniques of production are also required in industries to maximise the production and minimise the cost of production.

Also, the govt. has an important role to play in the industrial development by liberalising the process of industrialisation. At the same it has to frame the norms and regulations for ensuring the sustainable development. Another key factor in the process of industrialisation is entrepreneur. As the huge capital investment is needed to set up an industry, public-private partnership should be there.

Phase V: Analysis of Inquiry Process

In this phase, analysis of the inquiry process is done with a view to develop more effective strategies. The pupils analyse the inquiry process to examine its strengths and weaknesses. P.T. will ask the students to analyse the questions asked during the process of inquiry with an objective to enable them to understand whether they are able to solve the problem appropriately with the help of questions constructed by them or not. P.T. will also give them suggestions to improve the process of inquiry so that they can be helped to acquire the problem solving skills.

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